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# The performance of Dutch Investment Institutions over the period 1992 through 1996

A Detailed Research on International Equity Investment Institutions

by

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## Abstract

This paper deals with Dutch so called fiscal investment institutions subjected to the Act on the Supervision of Investment Institutions (ASII), which solely invest in equities. It analyses the individual and aggregated performances of these funds over the period 1992- 1996. Quarterly data for individual funds find no significant risk adjusted net return, gross of any load fees.

Furthermore it is found that the risk adjusted net return exceeded the load charge for a holding period of three years or longer. The question if portfolio managers achieve positive risk adjusted gross return remains unanswered, since investment institutions have a relative freedom in allocating expenses.

Subsequent the turnover of the investment institution's total assets is estimated. The results found are mixed. On average investment institutions turn over three fourths of their for cash in- or outflow adjusted assets. A rankcorrelation test did not show any relationship between turnover and risk adjusted net return.

## 1. Introduction

The Dutch broker Abraham van Ketwich can be looked upon as the founder of the first investment trusts in the world. He introduced his first investment trust in 1774 under the name 'Eendracht maakt Magt' (Union is Strength). Since the early 1990s investment funds have become more and more popular and started to play an increasingly important role in financial intermediation. At the end of 1996 272 investment institutions were subject to the supervision of De Nederlandsche Bank, managing over Fl. 120 billion. Although a variety of funds came into existence, equity funds still form a third part of total investments. Equity funds are offered by various sponsors including banks, insurance companies, brokerage houses and investment fund houses following diverse investment strategies. While much has been written about investment strategies in the Netherlands, very little has been written on the subject of investment fund performance and portfolio turnover.

By the early 1970s the efficient market hypothesis was commonly accepted. Within this framework the classic articles of Sharpe (1966) and Jensen (1968) both concluded that the performance of investment funds, after expenses but before loads, was actually inferior to the performance of randomly selected portfolios with equivalent risk over the period 1945 through 1964. In the late 1980s the informational efficiency framework came into existence. In contrast, Ippolito (1989) and Grinblatt and Titmann (1989) found slightly positive investment returns over the period 1964 though 1985 before loads, but net of any other expenses.

Studies from the 1990s confirm the early studies. Malkiel(l995) found that investment funds tend to underperform the market not only after management expenses, but also gross of all reported expenses except for load fees over the period 197 1 through 1991. Gruber (1996), covering the period 1985 through 1994, also concludes that investment funds underperform the market, although that before expenses a positive return exists. A recent study on the performance of the Dutch investment fund industry has been done by Bussel, Koedijk, Nissen, Pijnenburg and Schotman (1995). Using the single index model on the performances of 32 investment funds over the period 1989 through 1994, the authors found that investment funds neither underperform nor outperform the index net of any expenses, except load fees.

However gross returns is a measure how well the portfolio manager performed. In order to analyse investment funds from both, the individual investor's and the portfolio manager's point of view, net as well as gross returns are analysed whether they are commensurate with a market index return in this paper. Subsequent it is analysed whether investment funds, which trade more actively and have a higher portfolio turnover will perform worse compared with funds that do less trading.

## 2. Industry Perspective

Whilst the Netherlands can undeniably be pointed out as the origin of investment trusts, the quantitative significance of these institutions in the Netherlands remained limited till the end of the 1970s. After the introduction of, Dutch largest asset manager, Robeco Group's savings and internal investment account, huge sums of money left banks. Due to this development banks decided to establish in-house funds.

Ever since the Dutch investment industry has made a tremendous growth, whether one measures by assets under management or the number of investment funds. Over the past five years, the compound annual growth rate in assets under management by investment funds has been greater than 11 percent, which equals a total growth of 68 percent. At the end of 1996, there were more than Fl. 120 billion invested in 272 investment funds, which number has increased with 56 percent over the last five years.

*Table 1 Development of savings and portfolio investment capital*

End-of-year figures in billions of guilders

| | 1992 | 1993 | 1994 | 1995 | 1996 |
|---|---|---|---|---|---|
| Investments | 71.9 | 103.7 | 104.8 | 110.9 | 120.5 |
| Savings | 201.8 | 206.9 | 214.1 | 228.1 | 249.2 |

Source: DNB

In the past five years, the growth of savings has been considerably less than that of capital invested with investment funds. At the end of 1992, capital invested with investment institutions amounted Fl. 71.9 billion, while savings deposited with banks at the time were approximately three times as high. At the end of 1996, capital invested with investment institutions already amounted half of the savings.

Table 2 presents the capital invested according to the sort of investment. It is obvious that bonds account for the bulk of capital invested with investment funds over the 1992-1993 period. However, in the course of 1994 new deposits with bond funds dried up, while e.g. equity funds and real estate attracted new deposits. This was probably due to the lower interest rates available.

*Table 2 Capital invested by sort of investment*

End-of-year figures

| | 1992 | 1993 | 1994 | 1995 | 1996 |
|---|---|---|---|---|---|
| Equity | 34.1 | 35.6 | 36.4 | 36.0 | 38.9 |
| Bonds | 37.7 | 40.6 | 35.5 | 32.9 | 28.1 |
| Real Estate | 20.3 | 15.5 | 17.4 | 17.5 | 18.0 |
| Others | 7.9 | 8.3 | 10.7 | 13.6 | 18.0 |
| Total | 100.0 | 100.0 | 100.0 | 100.0 | 100.0 |

Source: DNB

## 3. Methodology

*The equation*

Recalling the CAPM, the expected return on any portfolio equals the risk free rate plus a risk premium given by the product of the systematic risk of the portfolio and the risk premium on the market portfolio. Equation (1) shows the most familiar expression of the CAPM.

$$(1) \qquad E(r_j) = r_f + \beta_j \left[ E(r_m) - r_f \right]$$

Substituting the ex ante measures $E(r_j)$ and $E(r_m)$, as they are unobservable, for ex post measures $r_j$ and $r_m$, equation (1) can be recast to the original Jensen equation in equation (2).

$$(2) \qquad r_{jt} - r_{ft} = \alpha_j + \beta_j \left( r_{mit} - r_{ft} \right) + e_j$$

Where,

$r_{jt}$ = Quarterly continuously compounded rate of return on j'th fund during period t;

$r_{ft}$ = Quarterly continuously compounded risk free rate of period t;

$\alpha_j$ = Jensen alpha;

$\beta_j$ = Systematic risk of fund j;

Lit = Quarterly continuously compounded rate of return on market portfolio i for period t;

$e_j$ = The random error, which has an expected value of zero.

Assuming that the asset pricing model is empirically valid, the realised returns on any portfolio can be expressed as a linear function of its systematic risk, the realised returns on the market index portfolio, the risk free rate and a random error $e_j$, which has an expected value of zero. If a portfolio manager has an ability to forecast security prices, the intercept $\alpha_j$ will be positive.

Jensen implicitely assumed the portfolio's beta constant over the analysed period. Dropping this restriction, Jensens alpha may be biased if a fund manager actively engages in market timing. As he will enlarge his portfolio's beta in an upward market and downsize his beta in a bearmarket.

## 4. Data and Empirical Results

***Fund data***

The goal in the sample is to include equity investment funds for which sufficiently historical data are available to estimate credible alphas. Therefore investment funds that meet the following criteria over the period 1992- 1996 were selected: (1) fund has to be registered and quoted in The Netherlands, (2) fund's total net assets have to exceed Fl. 20 million, (3) fund must invest in international equities or in one of the following regions: North-America, Europe, Far East, Pacific or the Netherlands.

*Survivorship bias*

To satisfy these criteria every fund in the January 1997 investment fund register of the Dutch Central Bank' with a reported inauguration data of 1992 or earlier is included. While this method approximately follows the selection method used by Jensen (1968) and by Bussel, Koedijk, Nissen, Pijnenburg and Schotman (1995) it has clear survivorship bias. Since there will be a tendency that successful funds will survive and measures of the returns will tend to overstate the success of investment funds in general*. Instead of using the latest register, every equity fund reported in the January 1992 register should be included, to avoid survivorship bias in the sample. This initial sample consisted of 53 equity investment funds. Of these funds, 7 did not meet the size criterion, 6 were liquidated or revoked, 5 changed policy or structure, 3 were registered on the Dutch Antilles, 2 were not quoted and 1 merged during the period 1992-1996. We obtained data on all funds from Datastream. For the non surviving funds, changed funds, foreign funds, small funds, not quoted funds and mergers there was no consistent data available. Our survivorship biased sample finally consisted of the quarterly returns on the portfolios of 27 open end and 2 closed end investment funds.

*Average Return*

The average quarterly return of the 29 investment funds in the sample over the period 1992-1996 is 0.0369, or multiplied by four, the estimated average annual return is fifteen percent. Statistically this average quarterly return differs from zero positively (with $\alpha$=0.05, t=10.27).

[1] according to section 18(5), 5Act on the supervision of Investment Institutions, a list of the institutions entered in the register shall be published in the Staatscourant, showing the position as at 31 December the preceding year.

[2] S.J. Brown, W.N. Goetzmann, R.G. Ibbotson and S.A. Ross, 1992, Survivorship bias in performance studies, Review of Financial Studies 50, 553-580

*Table 3 Annual return of equity funds and MS. C.I. by investment region, 1992-1996*

| | # funds | 1992 | 1993 | 1994 | 1995 | 1996 |
|---|---|---|---|---|---|---|
| International Equity | 9 | 3,54 (2,62) | 30,49 (28,62) | -7,21 (-5,78) | 11,23 (12,32) | 22,95 (21,35) |
| North-America | 2 | 16,35 (14,31) | 19,89 (17,22) | -11,28 (-9,15) | 14,59 (24,95) | 35,61 (30,60) |
| Europe | 6 | 1,96 (3,06) | 37,58 (34,35) | -5,99 (-8,29) | 6,86 (12,84) | 30,32 (28,20) |
| Far East | 4 | 12,50 (18,16) | 86,72 (83,51) | -17,96 (-15,66) | -6,29 (-8,55) | 14,32 (17,89) |
| Pacific | 3 | 1,79 (-11,61) | 48,66 (40,89) | -8,45 (1,41) | -3,83 (-3,63) | 2,12 (-0,68) |
| Netherlands | 5 | 5,25 (9,94) | 39,11 (39,70) | 3,01 (0,95) | 17,06 (18,20) | 38,21 (34,31) |
| All Funds | 29 | 5,44 | 42,35 | -7,09 | 7,59 | 24,64 |

Source: Datastream. Parantheses indicate the annual return of M.S.C.I. indices.

*The variables*

The variable risk free rate ($r_{ft}$) is the return on a 3-months Euro-guilder deposit taken from the Quarterly Reports of the Dutch Central Bank. The total rate of return for a fund in a quarter ($r_{jt}$) is taken from Datastream. Datastream figures are including all distributions and capital gains and net of all fees except load charges.

The rate of return on the i'th market portfolio ($r_{mit}$) is taken from Morgan Stanley Capital International (MSCI), whereby i depends on the region a fund invests in. For the regions Global, North-America, Europe, Far East, Pacific and the Netherlands the MSCI World, MSCI North America, MSCI Europe, MSCI AC Far East ex Japan, MSCI Pacific and MSCI Netherlands were chosen respectively. All MSCI indices are calculated in US dollars with net dividends reinvested. In order to compare the dollar returns with the individual fund returns, which are quoted in Dutch Guilders, the indices have been adjusted according a continuously hedged portfolio.

*Results*

Table 4 presents regression statistics of the estimated alpha's and beta's, including their t-values according to equation (2) using time series over the period 1992-1996. The sample figures are based on net returns gross of any load fees.

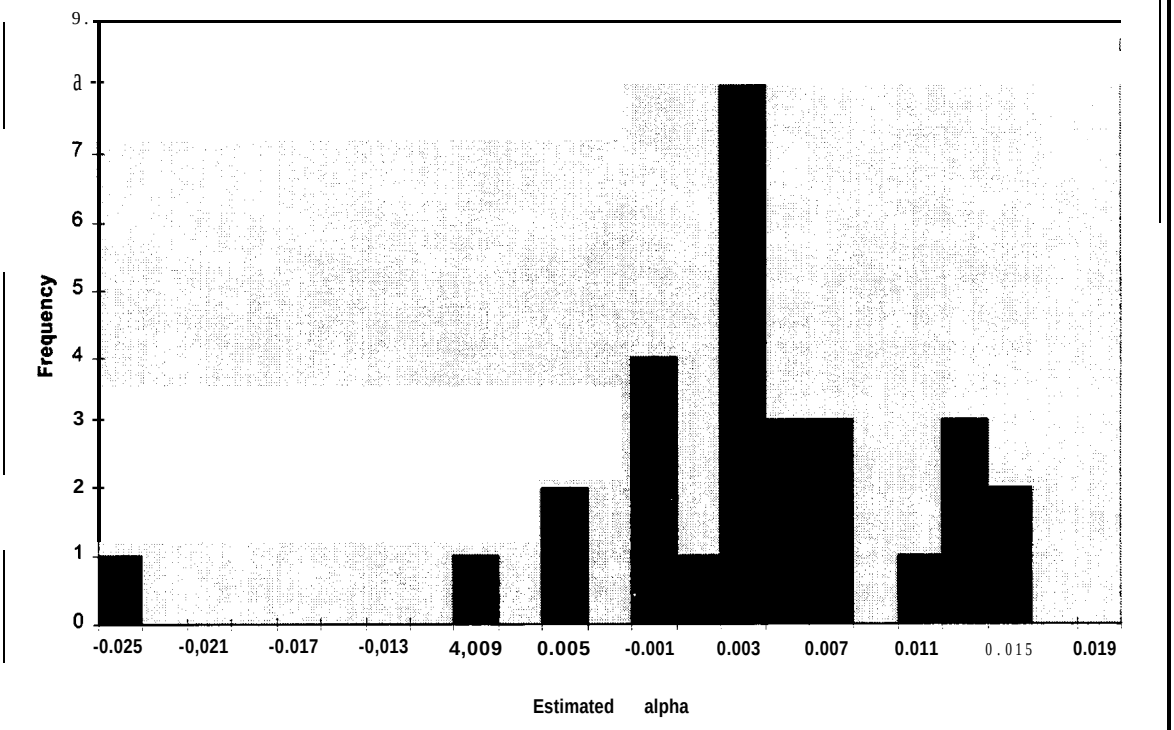
*Table 4 Estimated intercept a and estimated β and corresponding t-values for individual investment funds over the period 1992-I 996 using net returns*

| Number | Investment fund | Region | Alpha $\alpha_j$ | t-value $\alpha_j$ | Beta $\beta_j$ | t-value $\beta_j$ |
|---|---|---|---|---|---|---|
| 1 | Delta Lloyd Investment fund | Global | 0,0148 | 1,22 | 0,6115* | 2,99 |
| 2 | ABN AMRO Far East fund | Far East | 0,0138 | 1,63 | 0,2942* | 4,78 |
| 3 | Beleggingsmaatschappij OBAM | Global | 0,0125 | 1,37 | 0,8875* | 5,77 |
| 4 | RG Pacific Fund | Pacific | 0,0119 | 0,81 | 0,5135* | 3,13 |
| 5 | European Assets Trusts | Europe | 0,0113 | 0,41 | 0,2748 | 0,68 |
| 6 | ABN AMRO Aandelenfonds | Global | 0,0106 | 1,36 | 0,7417* | 5,66 |
| 7 | Asian Tigers Fund | Far East | 0,0066 | 1,05 | 0,9232* | 20,34 |
| 8 | ING Global Fund | Global | 0,0053 | 0,66 | 0,8431* | 6,21 |
| 9 | Aegon Aandelen fonds | Global | 0,0050 | 0,5 1 | 1,0348* | 6,23 |
| 10 | Asian Selection fund | Far East | 0,0049 | 0,45 | 1,0747* | 13,70 |
| 11 | Holland Europe Fund | Europe | 0,0046 | 1,01 | 0,9011* | 13,07 |
| 12 | Robeco | Global | 0,0039 | 0,67 | 0,8869* | 9,13 |
| 13 | ABN AMRO Europe Fund | Europe | 0,0030 | 0,76 | 0,9118* | 15,42 |
| 14 | ING Dutch Fund | Global | 0,0025 | 0,38 | 1,0329* | 9,70 |
| 15 | Rolinco | Global | 0,0021 | 0,35 | 0,8809* | 8,77 |
| 16 | Holland Pacific Fund | Pacific | 0,0020 | 0,16 | 0,7162* | 5,15 |
| 17 | ABN AMRO America Fund | America | 0,0018 | 0,34 | 0,8675* | 11,37 |
| 18 | Jade Fonds | Pacific | 0,0018 | 0,10 | 0,6727* | 3,25 |
| 19 | RG Europe Fund | Europe | 0,0013 | 0,29 | 0,9963* | 15,05 |
| 20 | Trans Europe Fund | Europe | 0,0012 | 0,19 | 0,9303* | 9,99 |
| 21 | ABN AMRO Netherlands fund | Netherlands | -0,0006 | -0,10 | 1,0803* | 11,04 |
| 22 | Orange Fund | Netherlands | -0,0010 | -0,08 | 0,9203* | 4,56 |
| 23 | RG America Fund | America | -0,0016 | -0,16 | 0,9793* | 6,91 |
| 24 | IS Himalayan Fund | Far East | -0,0022 | -0,06 | 0,6975* | 2,57 |
| 25 | Esmeralda | Global | -0,0024 | -0,37 | 1,0289* | 9,28 |
| 26 | Holland Fund | Netherlands | -0,0067 | - 1,04 | 1,0627* | 10,26 |
| 27 | Amsterdam EOE Fonds | Netherlands | -0,0070 | -1,32 | 1,1662* | 13,66 |
| 28 | Europe Growth Fund | Europe | -0,009 1 | -0,94 | 1,1262* | 7,80 |
| 29 | Intereffect 500 | Global | -0,0289* | -2,39 | 0,7822* | 3,84 |

* significant at 5 percent level

The observations are ordered from the highest to the lowest estimated alpha. The estimates range from 0.0148 to -0.0289. Estimates signed with . are significant at the 5 percent level. Figure 1 shows a frequency distribution of these estimates. From figure 1 and table 4 it can be seen that 9 investment funds (3 1 percent) have a negative estimated alpha and 20 investment funds (the remaining 69 percent) a positive. Except for the Intereffect 500 fund, which has a significant negative alpha, neither the positive alpha's, nor the negative alpha's differ from zero significantly.

*Figure 1 Frequency distribution for estimated intercept alpha*




Subsequently table 4 shows that except for one fund all have a beta which significantly differs from zero. The only exception is the European Assets Trust[3]. Noticeable fact is that within the first ten funds, there are five international equity funds. The ground for this phenomenon may be the geographical overweighting of the Netherlands in their international diversified portfolio. As the weighting of the Netherlands in the MSCI World index is about 2.5 percent, a certain overweighting in the Netherlands, in some cases more than 20 percent, would according to table 3 influence the return positively.

Another remarkable result is the beta of Robeco. The Robeco Croup promotes Robeco as less risky when compared to Rolinco. As a result Robeco should be expected to have a lower beta than Rolinco. Surprisingly both are nearly equal.

[3] Though there might be an explanation for this low beta. The European Assets Trust is a closed-end fund concentrating on European medium-sized firms. As Datastream provides stockprices, this price differs from its net asset value. During the years the European Assets Trust's stocks traded at a discount, which were up to almost 20 percent. This inevitably will have caused beta biased downwards.

*Statistical significance*

Table 5 presents some summary statistics of the cross-sectional estimated alpha for all 29 investment funds using quarterly data over the period 1992- 1996. The table presents the estimates of alpha and beta, their extreme values and a 95% confidence interval. It can been seen in the table that the overall estimated alpha was 0.0042, with a minimum value of -0.0289 and a maximum of 0.0148. This quarterly alpha of 0.0042, or annual alpha of 0.0169 does not differ from zero significantly.

*Table 5 Summary of cross section analyses for equation 2 for 29 investmentfunds returns over the period 1992-1996*

| Item | Estimation | Standard deviation | t-value | Minimum | Maximum | 95% confidence low | interval high | number of observations |
|---|---|---|---|---|---|---|---|---|
| alpha, $a$ | 0,0042 | 0,0023 | 1,80 | -0,0289 | 0,0148 | -0,0004 | 0,0088 | 580 |
| Beta, $\beta$ | 0,7980* | 0,0292 | 27,37 | 0,2748 | 1,1662 | 0,7407 | 0,8552 | 580 |

* significant at 5 percent level

Since the average value of beta was only 0.7980, on average funds tended to hold portfolios which were less risky than the market portfolio. Thus, any attempt to compare the average returns on these funds to the returns on any market index without explicit adjustment for differential riskiness would be biased against the funds.

The average adjusted squared correlation coefficient, $r^2$, was 0.5637 and indicates in general that equation 2 fits the data most of the funds not overwhelming. In order to estimate equation 2 it was assumed that the expected value of $e_j$ is equal to zero.

The Durbin and Watson test was 2.384 which indicates a low level of autocorrelation. Additionally, heteroskedasticity in the residuals, just like autocorrelation, invalidates the robustness of the estimates found. The White test for heteroskedasticity resulted in a F-statistic of 10.57. These results give confidence towards the robustness of the estimates found.

## 5. Expenses, Turnover and Performance

*Investment fund expenses*

Generally investment fund expenses can be divided in two distinct classes: (1) the once-only costs incurred when purchasing or selling investment fund shares, often referred as load fees and (2) the recurring costs, mostly on an annual basis, referred as the fund expenses.

Load fees act as a compensation for the administration costs or reimbursement for the broker. Most Dutch investment fund promoters offer an internal investment account, which has lower brokerage cost than the average stockbroker. Using an internal investment account these load charges typically are around 0.5 percent of the net asset value.

Since all investment funds within the sample are quoted on the Amsterdam Exchanges, they will be, as a result, traded at a bid-ask spread. This bid-ask spread is the difference between the price at which investment fund shares are bought and sold at the same time. Every day, the investment fund sets its bid and ask prices within a certain range, including the capital duty[4] of 1 percent, from its net asset value. This range, as quoted in the prospectus, concerns the maximum allowable spread. The maximum spread varies from fund to fund, but tends to be for equity funds in the region of 4 percent.

Thus, the once-only costs consist of the load fees and the spread. These charges effectively reduce the return on investment. For instance a Fl. 100 investment, facing a 0.5 percent front-end load and back-end load, and additionally a spread of 3 percent, for instance a 2.5% premium and 0.5% discount on net asset value, needs a

(3) $$\frac{\left[(100.5 \times 1.005) - (97.5 \times 0.995)\right]}{(975 \text{ x } 0.995)} = 0.0411$$

4.11 percent return, to come equal. In previous paragraph an average value of alpha of 0.017 per year was shown, indicating that on average investment funds earned 1.7 basispoints above they should earn given their risk level. If applying this alpha and deduct it for the different levels of load fees, it will become clear that alpha, from the

[4] Section 32-39 of the Act on Taxation of Securities

standpoint of the individual investors, is positive for a holding period of three years or more. This means that retail investors, with a buy and hold policy for at least three years, could achieve a positive net adjusted return, even after deducting load fees, over the 1992- 1996 period.

Along with to the once-only costs, the investors are charged with recurring costs. These charges are commonly bundled in one annual fee, which is a compensation for the investment manager. This management fee or investment advisory fee, as it is often called, is quoted as a fixed percentage of the average net assets value over a reporting period and will be periodically paid by the investment institution to the investment or portfolio manager. Since this payment is done from the fund's assets, the investors indirectly bear this cost.

The quoted annual management fee, however, is in effect a meaningless figure. As administration, custodian, marketing and other expenses that are charged to a fund, may amount marginally more than the quoted annual management fee. To cope with this problem one should use a ratio that incorporates all expenses. The total expense ratio enables to derive the underlying efficiency of investment funds, by removing the variable impact of a management fee. As the operating expenses refer to the costs incurred by the investment fund in operating the portfolio, including administrative, custodian, accountants, marketing and other expenses, the total expense ratio is calculated through dividing these costs by the average total net assets.

Though the total expense ratio is a superior measure, its implication in practice gives serious problems, which has especially to do with the investment fund's relative latitude of allocation of costs. This problem finds its origin in the legislation on furnishing of information to the public. For instance, till 1996 investment funds were allowed to subtract a certain amount of the Management Expenses from the fund's reserves. In consultation with the exchequer this amount could vary from a small percentage to more than half of the Management Expenses. Since this amount is not reported in the annual report or the annual account the investment institutions can invisibly deduct costs. As a result fund expenses are not mutually comparable. Calculating expense ratios for Dutch investment institutions is a senseless activity delivering meaningless figures. This means that it is impossible to calculate gross

adjusted returns for individual investment funds. The questions if portfolio managers have superior investment abilities and if these abilities are priced remain unanswered.

Since 1997 the Decree on Annual Accounting Standards applicable to investment companies has changed significantly. This change has improved the investment institution's presentation of the balance and profit and loss account and, more important, the insight in the performance of an investment institution'.

*Turnover*

Another unsolved question is the volume of the transaction costs. Investment purchases are reported as net purchases in the annual or semi-annual reports, so transaction costs remain invisible. It is clear that the volume of the transaction costs is directly related with the volume of the turnover. In order to measure turnover mutually, the turnover is measured as a percentage of the total assets.

A common used method to measure portfolio turnover is the sum of portfolio purchases and sales. In literature however, another measure for portfolio turnover is used. This academic definition of turnover is the lesser of purchases or sales. This because of the influence of the cash in- or outflow to the investment portfolio in a certain period. A huge proportion of new investors, i.e. a rise in capital inflow increases the turnover. Such an increment in turnover is more a consequence of marketing efforts and should therefore not penalise the portfolio management by a high turnover figure, as this is not due to their investment policy.

Despite this amend, one might doubt whether the academic measure is accurate. For instance, the academic turnover measure of an active portfolio manager, who purchases an amount of equities, sells it within a quarter in order to purchase other equities and having no huge capital in- or outflow, measures the lower of purchases and sales, which is equal to the amount of sales. This amount, however, does not reflect the turnover due to portfolio mutations on account of the investment policy. The academic measure is just a surrogate for the actual adjustments due to capital in- or outflow and always will underestimate the actual portfolio turnover. In fact it does not measure the consequences of any capital adjustments. Therefore we would like to introduce another turnover measure, which measures the actual turnover due to investment policy.

[5] D. Korf, Nieuwe verslaggevingsvoorschriften voor beleggingsinstellingen, MAB, 1/2, 1996

*Table 6 Average turnover ratio and total net assets of sample*

| Year | T1 | T2 | T3 | Total net assets |
|---|---|---|---|---|
| 1992 | 0.84 | 0.33 | 0.69 | Fl. 19,519,540,500 |
| 1993 | 1.02 | 0.34 | 0.70 | Fl. 26,411,848,000 |
| 1994 | 0.99 | 0.34 | 0.74 | Fl. 28,640,030,500 |
| 1995 | 1.05 | 0.44 | 0.90 | Fl. 28,978,614,000 |
| 1996 | 0.99 | 0.37 | 0.79 | Fl. 33,465,915,500 |
| Increment | 18% | 12% | 14% | 71% |

T1 is sum of purchases and sales, T2 is the lesser of purchases and sales
T3 is sum of adjusted purchases and sales

Based on quarterly figures from the Dutch Central Bank the purchases have been adjusted for cash inflow and the sales have been adjusted for cash outflow. Table 6 shows the different turnover ratio's and the total net assets of the 29 investment funds within the sample over the 1992- 1996 period. It can be seen that the simple measure overestimates and the academic measure underestimates the investment fund turnover. As expected the adjusted turnover figure lies somewhere in between.

According to the adjusted turnover measure the portfolio turnover of the 29 investment funds within the sample has increased with 14 percent over the last five years. This rise in turnover may be attributable to the declining cost of trading, which allow for more frequent portfolio revision. Though the results of the individual portfolio turnover are striking. Table 7 shows that more than 25 percent of the individual portfolio turnover results, over the five year period 1992- 1996, were more than one, including two funds having an average portfolio turnover of more than two. This implicates that these funds turned over their assets more than once a year. Arguing from an investors point of view this seems to be more speculation than investment management. The remaining funds have a reasonable portfolio turnover. Though some show heavily fluctuating turnover figures.

Table 7 Portfolio turnover of 29 equity funds

Average annual portfolio turnover over period 1992-l 996

| Category | 1992 | 1993 | 1994 | 1995 | 1996 | Average |
|---|---|---|---|---|---|---|
| Lower than 0.25 | 10 | 8 | 9 | 3 | 3 | 6,6 |
| Between 0.25 and 0.50 | 4 | 7 | 1 | 7 | 6 | 5 |
| Between 0.51 and 0.75 | 6 | 3 | 5 | 10 | 7 | 6,2 |
| Between 0.76 and 1 .00 | 4 | 2 | 5 | 0 | 7 | 3,6 |
| Between 1 .01 and 1.25 | 1 | 4 | 5 | 2 | 2 | 2,8 |
| Between 1.26 and 1.50 | 0 | 1 | 0 | 3 | 1 | 1 |
| Between 1.51 and 1.75 | 1 | 2 | 2 | 1 | 2 | 1,6 |
| Between 1.76 and 2.00 | 0 | 1 | 0 | 1 | 0 | 0,4 |
| Above 2.00 | 3 | 1 | 2 | 2 | 1 | 1,8 |
| Average Turnover | 0,69 | 0,70 | 0,74 | 0,90 | 0,79 | 0,76 |
| Standard deviation Turnover | 0,70 | 0,60 | 0,55 | 0,76 | 0,48 | 0.52 |
| Maximum Turnover | 2,97 | 2,43 | 1,81 | 3,45 | 2,41 | 2,03 |
| Minimum Turnover | 0,05 | 0,05 | 0,04 | 0,04 | 0,15 | 0,16 |

*Turnover and Performance*

Ippolito (1989) analysed the influence of turnover on the risk adjusted return over the period 1971-1984 of 143 investment funds. Results showed a coefficient on turnover insignificantly different from zero. Regression was rerun for different indices, time lagging and market timing. These attempts resulted in very small significant or insignificant coefficients. Carhart (1997) analysed the abnormal returns of 1,882 investment funds, free of survivorship, regressed on turnover measured in basis points over the period 1962 to 1993. The author found a statistically significant negative relation between both.

Based on preliminary findings and the common sense that higher turnover increases the transaction costs and indirectly lowers the result, we expect a small negative relationship between turnover and adjusted return. With 29 investment funds the Spearman rank correlation between performance and turnover over the 1992-1996 period was minus 0.061, which is at a 5 percent level insignificantly different from zero. Though negative, this result implicates that there is no convincing coherence between a low level of turnover and high performance.

Although no exact figures are available of the common practice of stockbrokers arrangements with investment funds by paying fundmanagers a return commission for directing the fund's trades to them, this might explain the outcome partially. The advantage of a return commission to the fund is that transaction costs are unreported and

the cash inflow from the commission, in a fact a return of relatively higher transactions costs paid to the broker, could alter the fund's performance.

## 6. Conclusions

This paper analysed the actual performances of Dutch equity investment funds and the relationship between portfolio turnover over the period 1992 through 1996. Empirical studies showed that the risk adjusted performance of investment funds is mixed at best. Studies from the late 1960s and early 1970s show that professional management is inferior to the performance of that of a broad market index. Which is consistent with the view that markets are strongly efficient and fund managers cannot earn positive gross adjusted performance. This is contradicting with the studies from the late 1970s and early 1980s. Assuming informational efficient markets, these studies imply that fund managers have access to enough information to earn superior gross returns to offset their expenses. Recent studies from the 1990s tend to confirm the early studies once again.

Given the data, covering a sample of 29 investment funds of the largest Dutch promoters over the period 1992-1996, it is found that none of the investment funds, net of all fees and expenses except for load charges, had a significantly positive estimated alpha. Cross section analyses estimated an overall annual alpha of 0.017, which is insignificantly different from zero. This is consistent with the notion that Dutch investment equity funds invest their money efficiently in the presence of costly information.

A brief analysis after load fees shows that retail investors with a buy and hold policy of three years or longer, could achieve a positive net adjusted return over the period 1992-l 996. In order to obtain additional information about the forecasting abilities of portfolio managers, it has been attempted to calculate gross returns. The relatively freedom in allocating investment fund expenses enables them to deduct costs invisible. Therefore it is impossible to estimate gross adjusted returns for Dutch investment institutions.

As purchases are reported net of transaction costs, these remain unknown. Investment funds with a high amount of purchases and sales, i.e. a high turnover, will

face higher transaction costs and finally they could have a lower return. A rank correlation test on the risk adjusted performance and the average portfolio turnover over 1992-1996 of 29 investment funds showed no significant relationship.

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